

AMENDMENT UNDER 37 C.F.R. § 1.111
Application No.: 10/614,042
Atty Docket No.: Q71025

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

Claim 1. (currently amended): A magnetic recording medium comprising a non-magnetic substrate, a non-magnetic undercoat layer, a magnetic layer, and a protective film, the layers and film being successively formed on the substrate, wherein the non-magnetic undercoat layer has a multi-layer structure formed of at least two layers and contains a layer A formed of a material selected from the group consisting of a Cr-Ta[[-based]] alloy, a Cr-Nb[[-based]] alloy, a Cr-Ti[[-based]] alloy, a Cr-Zr[[-based]] alloy, and a Cr-Hf[[-based]] alloy, and a layer B formed of a material selected from the group consisting of a Co-W[[-based]] alloy, a Co-W-B[[-based]] alloy, a Co-Mo[[-based]] alloy, a Co-Mo-B[[-based]] alloy, a Co-W-Mo[[-based]] alloy, and a Co-W-Mo-B[[-based]] alloy, in which the layers A and B are provided in this order from the non-magnetic substrate.

Claim 2. (original): A magnetic recording medium according to claim 1, wherein the non-magnetic undercoat layer contains, on the side of the layer B that is close to the magnetic layer, a layer C which is a Cr layer or a Cr alloy layer formed of Cr and at least one element selected from among Ti, Mo, Al, Ta, W, Ni, B, Si, and V.

Claim 3. (currently amended): A magnetic recording medium according to claim 1 or 2, wherein layer A contains the Cr-Ta alloy and the Cr-Ta[[-based]] alloy has a Ta content falling within a range of 25 at % to 50 at %.

AMENDMENT UNDER 37 C.F.R. § 1.111

Application No.: 10/614,042

Atty Docket No.: Q71025

Claim 4. (currently amended): A magnetic recording medium according to claim 1 or 2, wherein layer A contains the Cr-Nb alloy and the Cr-Nb[[-based]] alloy has an Nb content falling within a range of 25 at % to 50 at %.

Claim 5. (currently amended): A magnetic recording medium according to claim 1 or 2, wherein layer A contains the Cr-Ti alloy and the Cr-Ti[[-based]] alloy has a Ti content falling within a range of 25 at % to 50 at %.

Claim 6. (currently amended): A magnetic recording medium according to claim 1 or 2, wherein layer A contains the Cr-Zr alloy and the Cr-Zr[[-based]] alloy has a Zr content falling within a range of 25 at % to 50 at %.

Claim 7. (currently amended): A magnetic recording medium according to claim 1 or 2, wherein layer A contains the Cr-Hf alloy and the Cr-Hf[[-based]] alloy has an Hf content falling within a range of 25 at % to 50 at %.

Claim 8. (currently amended): A magnetic recording medium according to claim 1 or 2, wherein layer B contains the Co-W alloy and the Co-W[[-based]] alloy has a W content falling within a range of 30 at % to 50 at %.

Claim 9. (currently amended): A magnetic recording medium according to claim 1 or 2, wherein layer B contains the Co-W-B alloy and the Co-W-B[[-based]] alloy has a W content falling within a range of 30 at % to 50 at %, and a B content of 5 at % or less.

Claim 10. (currently amended): A magnetic recording medium according to claim 1 or 2, wherein layer B contains the Co-Mo alloy and the Co-Mo[[-based]] alloy has an Mo content falling within a range of 30 at % to 50 at %.

AMENDMENT UNDER 37 C.F.R. § 1.111

Application No.: 10/614,042

Atty Docket No.: Q71025

Claim 11. (currently amended): A magnetic recording medium according to claim 1 or 2, wherein layer B contains the Co-Mo-B alloy and the Co-Mo-B[[-based]] alloy has an Mo content falling within a range of 30 at % to 50 at %, and a B content of 5 at % or less.

Claim 12. (currently amended): A magnetic recording medium according to claim 1 or 2, wherein, layer B contains the Co-W-Mo alloy and in the Co-W-Mo[[-based]] alloy, the total amount of W and Mo falls within a range of 30 at % to 50 at %.

Claim 13. (currently amended): A magnetic recording medium according to claim 1 or 2, wherein, layer B contains the Co-W-Mo alloy and in the Co-W-Mo-B[[-based]] alloy, the total amount of W and Mo falls within a range of 30 at % to 50 at %, and the B content is 5 at % or less.

Claim 14. (original): A magnetic recording medium according to claim 1 or 2, wherein the non-magnetic substrate is formed of glass or silicon.

Claim 15. (currently amended): A magnetic recording medium according to claim 1 or 2, wherein the magnetic layer is formed of at least one material selected from among a Co-Cr-Ta ~~based~~ alloy, Co-Cr-Pt[[-based]] alloy, a Co-Cr-Pt-Ta[[-based]] alloy, a Co-Cr-Pt-B[[-based]] alloy, and a Co-Cr-Pt-B-Y[[-based]] alloy, wherein Y is Ta or Cu.

Claim 16. (currently amended): A process for producing a magnetic recording medium as recited in claim 1 ~~or~~ 2, comprising a step of forming layer A, layer B, and layer C in this order, and a step of exposing the surface of the thus-formed layer B to an oxygen atmosphere.

AMENDMENT UNDER 37 C.F.R. § 1.111

Application No.: 10/614,042

Atty Docket No.: Q71025

Claim 17. (original): A process for producing a magnetic recording medium according to claim 16, wherein, in the step of exposing the surface of the layer B to an oxygen atmosphere, the pressure of an oxygen gas is regulated so as to fall within a range of 5×10^{-4} Pa to 5×10^{-2} Pa.

Claim 18. (original): A magnetic recording medium produced through a production process as recited in claim 16.

Claim 19. (original): A magnetic recording and reproducing apparatus comprising a magnetic recording medium as recited in claim 1 or 2, and a magnetic head for recording of data onto the medium and for reproduction of the data therefrom.

Claim 20. (new): A process for producing a magnetic recording medium as recited in claim 1, comprising a step of forming layer A and layer B in this order, and a step of exposing the surface of the thus-formed layer B to an oxygen atmosphere.

Claim 21. (new): A process for producing a magnetic recording medium according to claim 21, wherein, in the step of exposing the surface of the layer B to an oxygen atmosphere, the pressure of an oxygen gas is regulated so as to fall within a range of 5×10^{-4} Pa to 5×10^{-2} Pa.

Claim 22. (new): A magnetic recording medium produced through a production process as recited in claim 20.